The Cabin in the Woods

Middle Level
Performance Event for Math
by

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The Cabin in the Woods

Purpose: This event is designed for instructional purposes within the classroom. It could be used as a culminating activity after studying the processes for finding areas and perimeters for varied shapes or may be used simultaneously when studying these processes. It requires that students demonstrate their understanding of basic math computations, finding area and perimeter and drawing a floor plan using defined specifications.

Show-Me Standards Addressed:

Knowledge: M1, M2, M4
Performance: 1.8, 3.4

Grade Level Range: 6-8 (Possibly 9th Grade)

Subject Area: Math

Materials and Resources Needed:

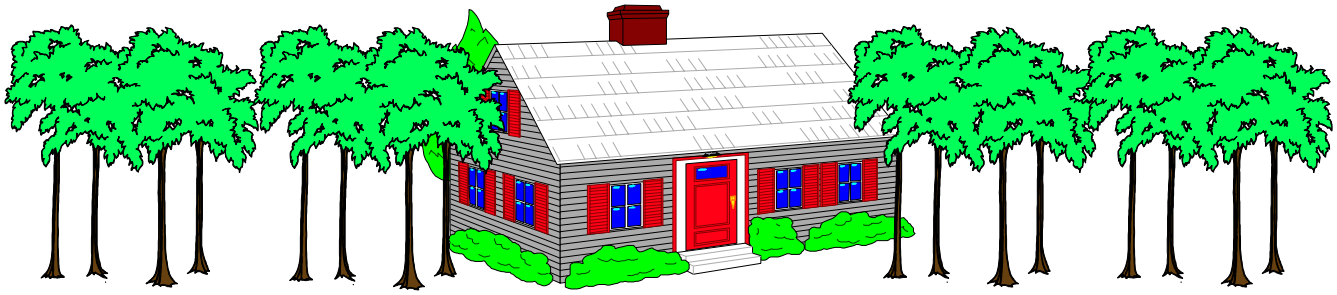
*pencil
*ruler
*Performance Event Packet which contains:
Student prompt and scoring guide.
Planning Sheet for Floor Plan
Final Floor Plan Sheet
Sheet to write the process
Formula Reference Sheet

Time Needed for Event: 45 - 60 minutes

Instructions for Administration: Assign each student a partner. Present each pair with a Performance Event Packet containing the necessary sheets. Read the directions aloud so every student understands the prompt. Present the scoring guide and go over each criteria to be assessed so students know what is expected for a quality performance. Students may refer to the Formula Reference Sheet provided.

Pre-assessment Instructions: Prior to administration of the event, the students should have a working knowledge of finding areas and perimenters for varied shapes, using computational skills, drawing floor plans, and determining directions.

The Cabin in the Woods

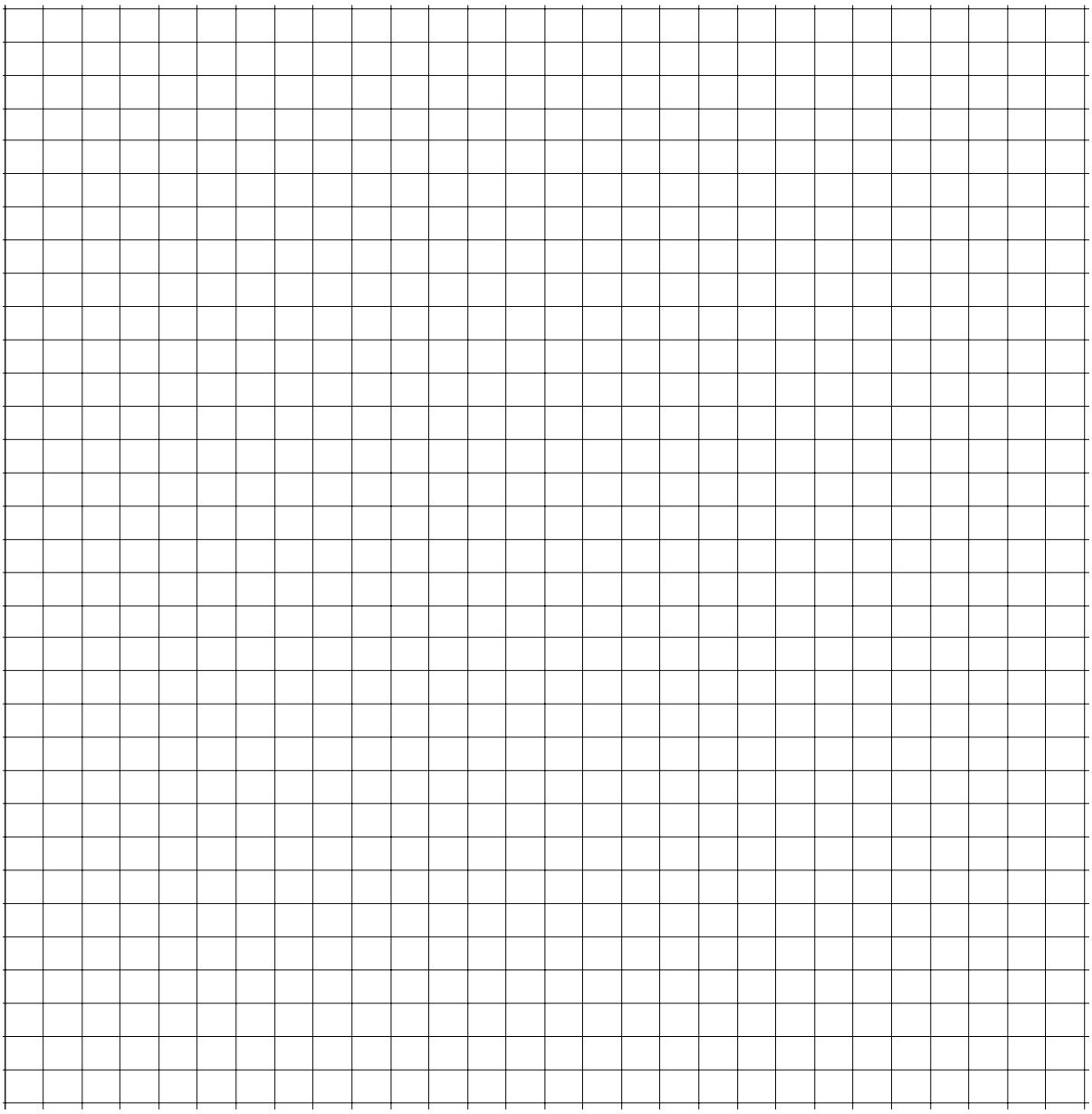


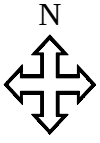
You are an architect specializing in retirement homes. A local physician has requested a floor plan for a one-story cabin in the woods. He has given you the following specifications. The total floor space should be between 1400 and 1600 square feet. The longest wall must be facing south and the shortest wall must be at least 30 feet.

You will work with a partner to prepare a floor plan for the Doctor's cabin. Use your knowledge of perimeters and finding areas of various shapes to create your floor plan. A planning sheet has been provided for your convenience.

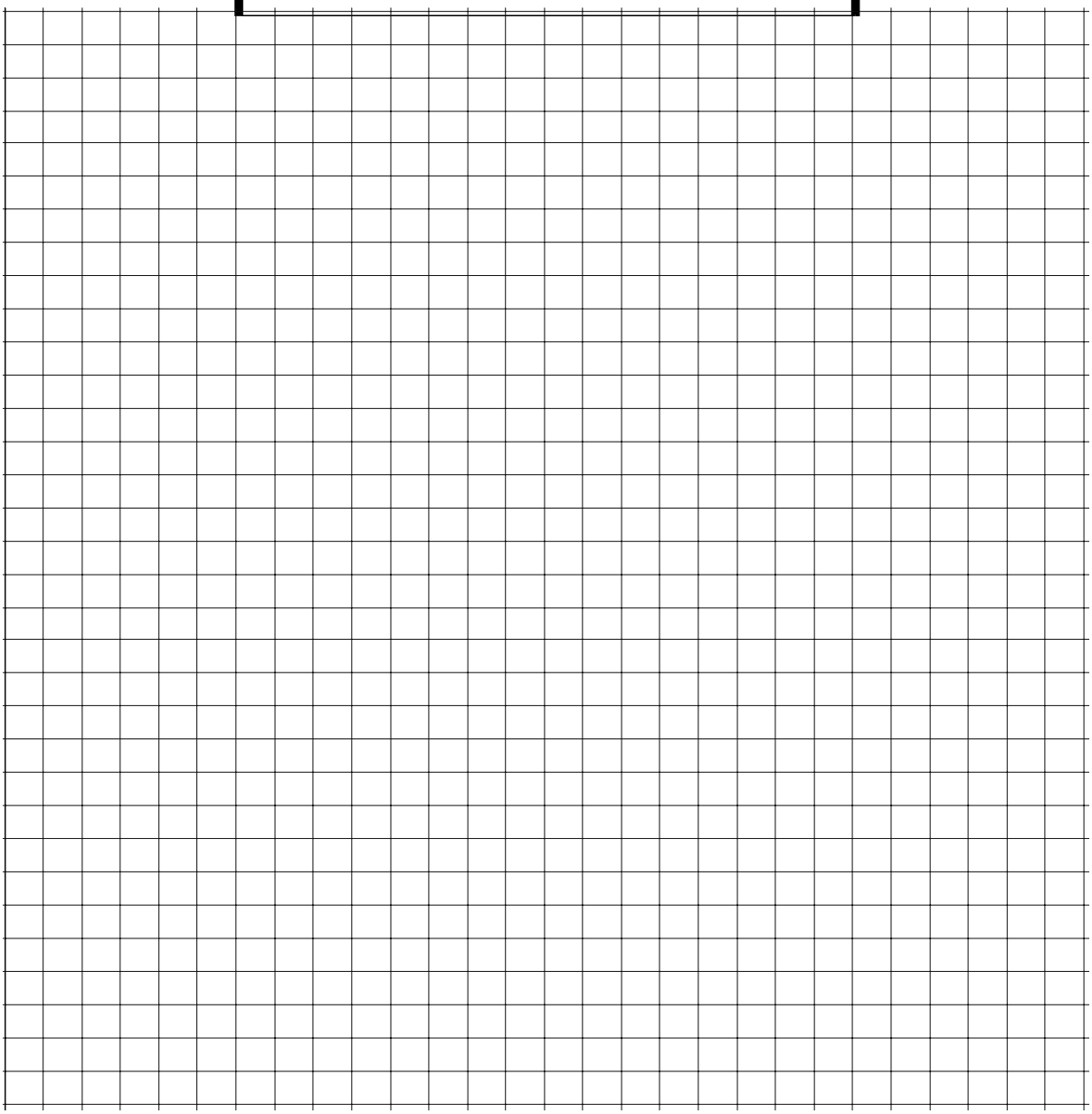
Draw your final floor plan on the Final Floor Plan Sheet. Write the process you used to solve the problem so you can tell the Doctor how you derived at your plan.

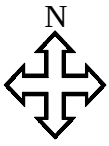
Planning Sheet for Floor Plan





Final Floor Plan





Write the process you used to design your floor plan.

Name:_____

Date:_____

Scoring Guide: Cabin in the Woods

Criteria to be assessed	4 Exemplary	3 Acceptable	2 Partial Success	1 Little Success
Mathematical knowledge required in the use of formulas and calculating. (M1,M4)	Knowledge of the use of the formulas and calculations needed to solve the problem is fully demonstrated leading to the correct solution.	Knowledge of the use of the formulas and calculations needed to solve the problem is sufficient leading to a reasonable solution.	Knowledge of the use of the formulas and calculation is confused and somewhat fragmented that may or may not lead to a valid solution.	Knowledge of the use of the formulas and calculations is severely lacking and no understanding is demonstrated to solve the problem.
The process used to create a floor plan within required specifications: an area between 1400 and 1600 square feet, the longest wall faces south, and the shortest wall is at least 30 feet. (M2) (1.8)	The process used to create a floor plan is methodical, complete, and accurate. The floor plan meets all of the specifications.	The process used to create a floor plan is substantial and focused; minor errors in computation and/ or drawing result in a reasonable solution or a floor plan close to the required specifications.	The process used to create a floor plan is complete but fragmented and lacks focus; major errors in computation and/ or drawing result in an unreasonable solution.	The process used to create a floor plan may be incomplete or show severe misconceptions or no understanding or sense of direction.
The student's explanation of the steps used in the process for designing a floor plan that meets required specifications. (3.4)	The student's explanation of the steps in the process is clear, accurate, complete, and logical.	The student's explanation of the steps in the process is generally complete, and for the most part, logical, although it may be difficult to understand what the student did at one or two points in the process.	The student's explanation of the steps in the process may be general and lacking in detail; may be difficult to follow or may appear somewhat illogical.	The student's explanation of the steps in the process may be completely illogical or extremely difficult to follow.
OT= Off Task NR= No Response				

Formula Reference Sheet

Area

Square: $A = s^2$

Rectangle: $A = bh$

Triangle: $A = \frac{1}{2}bh$

Perimeter

Square: $P = 4s$

Rectangle: $P = 2(b + h)$

Triangle: P= Total of 3 sides